

What is claimed is:

- 1 1. A method of re-routing data traffic in a data communication network
2 comprising:
3 forming a protection path between a base node and an end node wherein
4 the protection path avoids an intermediate node between the base node and the
5 end node;
6 advertising within the network availability of protection provided by the
7 protection path;
8 forming a protected path for communicating data, the protected path
9 passing through the intermediate node;
10 detecting a fault in the network; and
11 avoiding the fault by using the protection path for communicating data.
- 1 2. The method according to claim 1, the protection path having exactly two
2 hops between the base node and the end node.
- 1 3. The method according to claim 1, the protection path having more than
2 two hops between the base node and the end node.
- 1 4. The method according to claim 1, further comprising at least one
2 additional protection path between the base node and the end node wherein the
3 additional protection path avoids the intermediate node.
- 1 5. The method according to claim 1, wherein the fault affects the
2 intermediate node.
- 1 6. The method according to claim 1, wherein the fault affects a network link
2 connected to the intermediate node.

1 7. The method according to claim 1, the protected path being a label-
2 switched path (LSP).

1 8. The method according to claim 1, said forming the protected path
2 comprising sending a reservation message including a label for the protection
3 path.

1 9. The method according to claim 8, wherein the reservation message also
2 includes indicia of a possible point of failure in the network.

1 10. The method according to claim 9, wherein the indicia of a possible point
2 of failure includes a first field for identifying a component of the network and a
3 second field for identifying a sub-component of the component identified in the
4 first field.

1 11. The method according to claim 9, wherein the possible point of failure
2 includes the intermediate node.

1 12. A method of re-routing data traffic in a data communication network
2 comprising:
3 identifying a base node in the network;
4 identifying an intermediate node in the network that is exactly one hop
5 away from the base node;
6 identifying an end node in the network that is exactly one hop away from
7 the intermediate node;
8 forming a protection path between the base node and the end node wherein
9 the protection path avoids the intermediate node;
10 advertising within the network availability of protection provided by the
11 protection path;
12 forming a protected path for communicating data, the protected path
13 passing through the intermediate node;

14 detecting a fault in the network; and
15 avoiding the fault by using the protection path for communicating data.

1 13. The method according to claim 12, further comprising at least one
2 additional protection path between the base node and the end node wherein the
3 additional protection path avoids the intermediate node.

1 14. The method according to claim 12, wherein the fault affects the
2 intermediate node.

1 15. The method according to claim 12, wherein the fault affects a network link
2 connected to the intermediate node.

1 16. The method according to claim 12, the protected path being a label-
2 switched path (LSP).

1 17. The method according to claim 12, said forming the protected path
2 comprising sending a reservation message including a label for the protection
3 path.

1 18. The method according to claim 17, wherein the reservation message also
2 includes indicia of a possible point of failure in the network.

1 19. The method according to claim 18, wherein the indicia of a possible point
2 of failure includes a first field for identifying a component of the network and a
3 second field for identifying a sub-component of the component identified in the
4 first field.

1 20. The method according to claim 18, wherein the possible point of failure
2 includes the intermediate node.

1 21. A system for re-routing data traffic in a data communication network
2 comprising a plurality of interconnected nodes, at least one node having stored
3 indicia of a protection path, the protection path extending between a base node
4 and an end node wherein the protection path avoids a intermediate node between
5 the base node and the end node, and the system comprising a protected path for
6 communicating data, the protected path passing through the intermediate node,
7 wherein when a fault is detected, the fault is avoided by using the protected path.

1 22. The system according to claim 21, the protection path having two hops
2 between the base node and the end node.

1 23. The system according to claim 21, the protection path having more than
2 two hops between the base node and the end node.

1 24. The system according to claim 21, further comprising at least one
2 additional protection path between the base node and the end node wherein the
3 additional protection path avoids the intermediate node.

1 25. The system according to claim 21, wherein the fault affects the
2 intermediate node.

1 26. The system according to claim 21, wherein the fault affects a network link
2 connected to the intermediate node.

1 27. The system according to claim 21, the protected path being a label-
2 switched path (LSP).

1 28. The system according to claim 21, the protected path is formed by sending
2 a reservation message including a label for the protection path.

1 29. The system according to claim 28, wherein the reservation message also
2 includes indicia of a possible point of failure in the network.

1 30. The system according to claim 29, wherein the indicia of a possible point
2 of failure includes a first field for identifying a component of the network and a
3 second field for identifying a sub-component of the component identified in the
4 first field.

1 31. The system according to claim 30, wherein the possible point of failure
2 includes the intermediate node.